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Report

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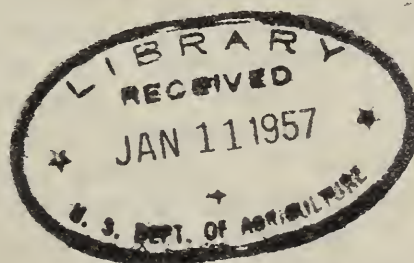
REPORT ON THE UNIFORM WINTER HARDINESS OAT NURSERIES FOR 1953-54

by Franklin A. Coffman, Senior Agronomist, Oat Investigations

The Uniform Winter Hardiness Experiment has now been conducted for 28 years. First seeded in 1926 on seven stations, it has been grown on some 40 to 45 stations in each of the past ten years. This report presents results only for the season of 1953-54. It is planned to make a more complete report at a later date, bringing summary results of the experiment up to date.

The hardiness nursery was seeded on 40 stations in the fall of 1953. A list of the cooperators is presented in Table 1, whereas data obtained in 1953-54 are included in Table 2.

Winterkilling in 1953-54 was much more extensive than in 1952-53. Reports indicated all entries survived 100 percent on 15 stations, and all killed on two stations. Only 23 of the 40 cooperating stations reported killing of a differential nature.



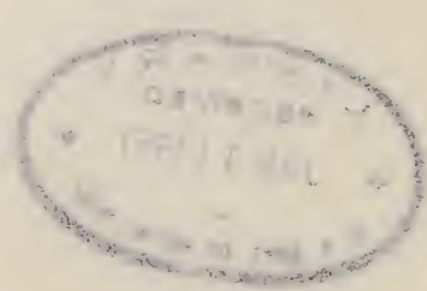
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xv55
Plant Industry Station
Beltsville, Maryland
312CC -- June, 1954

Office of the Secretary of the
Department of the Interior
Washington, D.C.

February 1, 1901

Very respectfully,
Your obedient servant,

My dear Sir: I have the honor to acknowledge the receipt of your letter of the 28th inst. in relation to the matter of the application for a patent for an improvement in the method of treating hides. I have the same referred to the proper authorities for their consideration. I am, Sir, very respectfully,
Yours very truly,
John D. Smith
Secretary of the Interior



Based on percent of survival in 1953-54, the most hardy entries included were in order Ballard Selection from Kentucky: C.I. 6905, Wintok: C.I. 3424; and Fulwin: C.I. 3168. The survivals of these three entries were 81.0, 80.7, and 80.6 percent, respectively. No other entries had survival averages equal to 80 percent. New York Selection: C.I. 5364, usually outstandingly hardy, had a survival average of only 76.5 percent in 1953-54.

Among the entries that have recently become of interest for fall seeding because of their hardiness, Arkwin survived 67.3 percent; Woodward Composite: C.I. 5106, 73.5; and Dubois, 78.3 percent. The three sister strains to Mustang, C.I. No's. 6571, 6717, and 6901, survived 75.8, 75.0, and 74.5, respectively. All of these sister strains appear to have about the same degree of hardiness. A new entry of interest in 1953-54 is Stanton Strain: C.I. 6902 from Oklahoma. This oat differs decidedly in plant character from the original Stanton Strain 1. It ranked high in hardiness, averaging 79.0 percent in 1953-54.

It is of interest to note that C.I. 5368: Clinton x Hairy Culberson continues to survive better than Hairy Culberson. The average survival of the hybrid grown during the period 1950 to 1954--or for the 112 nurseries in which differential killing has been recorded--is 77.0 percent compared with 73.9 percent for the Hairy Culberson parent. Thus conclusive evidence exists for believing that genes for added hardiness are present in spring oats and can be obtained from crossing winter on spring varieties. The advance of about 4.2 percent is a very worthwhile increment of added hardiness.

A number of new disease-resistant strains were included in 1953-54 for the first time. As usual, none appeared especially promising from the standpoint of hardiness; however, based on the survival of Fulghum: C.I. 708 (43.9 percent) and of Appler (42.1 percent), definite progress apparently is indicated in our work of breeding hardier disease-resistant oats. The survivals of Wintok x (Clinton²-Santa Fe): C.I. 6740 averaged 58.7 percent; that of Atlantic x (Clinton²-Santa Fe): C.I. 6736, 56.4 percent; and that of Santa Fe x (Stanton-Fulgrain): C.I. 6907, 56.2 percent. The survival percentage of (Victoria x Hajira-Banner) x (Fulghum-Victoria): C.I. 6719 was 44.0 percent, and that of (Arlington-Delair) x Trispermia: C.I. 6908, 43.6 percent. In all of these oats the rust resistance was derived from spring oat varieties. Although none of these oats appear to be especially hardy, yet Lee: C.I. 2042 survived only 62.9; and Winter Turf: C.I. 3296, only 62.7 percent in 1953-54. Hence it is seen that some of the new rust-resistant hybrids appear more hardy than Appler or Fulghum: C.I. 708 and to be approaching the old Check varieties in hardiness.

Table 1. Cooperators in Conducting the Uniform Winter Hardiness Nursery
in 1953-54

| <u>State</u> | <u>Station</u> | <u>Cooperators</u> |
|--------------|----------------|--|
| Ark. | Fayetteville | R. L. Thurman |
| | Stuttgart | T. H. Johnston |
| Ga. | Athens | Acton Brown |
| | Blairsville | U. R. Gore |
| | Experiment | U. R. Gore |
| Ill. | Carbondale | R. O. Weibel, J. P. Vavra |
| | Urbana | J. W. Pendleton |
| Ind. | Lafayette | R. M. Caldwell, F. L. Patterson, & L. E. Compton |
| | Princeton | R. M. Caldwell, F. L. Patterson, & L. E. Compton |
| Ky. | Hopkinsville | J. F. Shane & D. A. Reid |
| | Lexington | D. A. Reid |
| Md. | Beltsville | F. A. Coffman & C. B. Marcus |
| | College Park | R. G. Rothgeb |
| Miss. | Holly Springs | S. S. Ivanoff |
| | State College | S. S. Ivanoff |
| | Stoneville | D. H. Bowman |
| Mo. | Columbia | J. M. Poehlman |
| N. Y. | Ithaca | N. F. Jensen |
| N. C. | Statesville | G. K. Middleton & T. T. Hebert |
| | Waynesville | G. K. Middleton & T. T. Hebert |
| Ohio | Columbus | V. C. Finkner |
| Okla. | Stillwater | A. M. Schlehuber |
| | Woodward | A. M. Schlehuber |
| Oreg. | Moro | W. E. Hall |
| Penna. | State College | C. S. Bryner |
| S. C. | Chester | S. J. Hadden |
| | Clemson | E. B. Eskew |
| | Hartsville | S. J. Hadden |
| | Blackville | J. H. Hoyert |
| Tenn. | Columbia | N. I. Hancock |
| | Crossville | N. I. Hancock |
| | Jackson | N. I. Hancock |
| | Knoxville | N. I. Hancock |
| Tex. | Amarillo | K. B. Porter |
| | Denton | I. M. Atkins |
| | Greenville | D. D. Porter |
| Va. | Blacksburg | T. M. Starling |
| | Staunton | P. T. Gish & T. M. Starling |
| W. Va. | Morgantown | Collins Veatch |
| | Wardensville | Collins Veatch |

Table 2. Individual Station and Summary Data on Survival of Oat Varieties and Selections Included in the Uniform Winter Hardiness Nursery Grown in 1953-1954. 17

| C.I. No. | Variety or Selection | Average 23 Stations | Fayetteville, Ark. | Athens, Ga. | Blairsville, Ga. | Carbondale, Ill. | Urbana, Ill. | Lafayette, Ind. | Princeton, Ind. | Lexington, Ky. | Belltsville, Md. | College Park, Md. | Columbia, Mo. | Ithaca, N.Y. | Statesville, N.C. | Columbus, Ohio | Stillwater, Okla. | Woodward, Okla. | State College, Penna. | Crossville, Tenn. | Knoxville, Tenn. | Amarillo, Tex. | Denton, Tex. | Greenville, Tex. | Morgantown, W. Va. |
|----------|---|---------------------|--------------------|-------------|------------------|------------------|--------------|-----------------|-----------------|----------------|------------------|-------------------|---------------|--------------|-------------------|----------------|-------------------|-----------------|-----------------------|-------------------|------------------|----------------|--------------|------------------|--------------------|
| 3424 | Wintok | 80.7 | 97.5 | 100.0 | 95.0 | 82.5 | 1.0 | 90.0 | 100.0 | 95.0 | 100.0 | 96.0 | 35.0 | 13.0 | 93.0 | 0 | 100.0 | 95.0 | 70.0 | 95.0 | 94.4 | 100.0 | 100.0 | 100.0 | 100.0 |
| 5106 | Woodward Selection | 73.5 | 95.0 | 100.0 | 90.0 | 67.5 | 0 | 68.0 | 100.0 | 97.5 | 100.0 | 98.0 | 45.0 | 12.0 | 100.0 | 5.0 | 100.0 | 76.0 | 50.0 | 70.0 | 88.8 | 100.0 | 98.0 | 100.0 | 30.0 |
| 2505 | Hairy Culberson | 71.2 | 91.0 | 100.0 | 95.0 | 87.5 | 1.0 | 18.0 | 100.0 | 100.0 | 100.0 | 100.0 | 25.0 | 8.0 | 100.0 | 2.0 | 100.0 | 58.0 | 65.0 | 90.0 | 93.3 | 100.0 | 98.0 | 97.0 | 45.0 |
| 5368 | Clinton x Hairy Culberson:Purdue 407-25-6 | 77.9 | 74.0 | 100.0 | 95.0 | 82.5 | 2.0 | 78.0 | 100.0 | 100.0 | 100.0 | 100.0 | 18.0 | 15.0 | 98.0 | 25.0 | 100.0 | 84.0 | 75.0 | 80.0 | 80.0 | 100.0 | 100.0 | 100.0 | 85.0 |
| 6700 | Wintok x (Clinton2-Santa Fe) | 58.7 | 92.5 | 100.0 | 100.0 | 82.5 | T | 3.0 | 100.0 | 92.5 | 100.0 | 100.0 | 10.0 | 1.0 | 80.0 | 0 | 100.0 | 21.0 | 8.0 | 50.0 | 68.7 | 100.0 | 85.0 | 99.0 | 16.0 |
| 5364 | New York Selection | 76.5 | 92.5 | 100.0 | 90.0 | 77.5 | 1.0 | 85.0 | 100.0 | 90.0 | 63.6 | 96.0 | 43.0 | 11.0 | 60.0 | 6.0 | 100.0 | 89.0 | 83.0 | 95.0 | 88.5 | 100.0 | 100.0 | 100.0 | 95.0 |
| 3296 | Winter Turf (check) | 62.7 | 90.0 | 100.0 | 90.0 | 77.5 | 0 | 20.0 | 100.0 | 85.0 | 100.0 | 100.0 | 20.0 | 3.0 | 90.0 | 0 | 80.0 | 61.0 | 18.0 | 80.0 | 66.6 | 100.0 | 93.0 | 42.0 | 27.0 |
| 3168 | Fulwin | 80.6 | 95.0 | 100.0 | 90.0 | 75.0 | 0 | 80.0 | 100.0 | 92.5 | 100.0 | 100.0 | 43.0 | 18.0 | 100.0 | 28.0 | 98.0 | 84.0 | 75.0 | 95.0 | 94.4 | 100.0 | 100.0 | 100.0 | 85.0 |
| 2499 | Pentagon: Winter Fulghum | 77.6 | 90.0 | 100.0 | 95.0 | 85.0 | T | 70.0 | 100.0 | 95.0 | 100.0 | 100.0 | 25.0 | 29.0 | 100.0 | 5.0 | 98.0 | 76.0 | 53.0 | 80.0 | 94.4 | 91.0 | 100.0 | 98.0 | 100.0 |
| 6571 | (Lee-Victoria) x Fulwin:Tex.3770-7 | 75.8 | 95.0 | 100.0 | 90.0 | 82.5 | 0 | 73.0 | 100.0 | 96.5 | 100.0 | 99.0 | 25.0 | 14.0 | 88.0 | 8.0 | 100.0 | 87.0 | 58.0 | 95.0 | 66.7 | 100.0 | 100.0 | 100.0 | 65.0 |
| 6717 | " " :Tex.3770-1 | 75.0 | 92.0 | 100.0 | 85.0 | 67.5 | T | 75.0 | 100.0 | 87.5 | 100.0 | 100.0 | 25.0 | 8.0 | 98.0 | 0 | 100.0 | 84.0 | 55.0 | 95.0 | 94.4 | 89.0 | 100.0 | 100.0 | 75.0 |
| 6572 | Dubois: Clinton x Forkeddeer | 78.3 | 92.0 | 100.0 | 90.0 | 85.0 | 0 | 75.0 | 100.0 | 72.5 | 100.0 | 99.0 | 55.0 | 16.0 | 98.0 | 0 | 100.0 | 66.0 | 75.0 | 95.0 | 94.4 | 100.0 | 100.0 | 100.0 | 85.0 |
| 6727 | Clinton x Forkeddeer:Purdue 4011-14-3 | 75.9 | 90.0 | 100.0 | 90.0 | 82.5 | 0 | 78.0 | 100.0 | 80.0 | 100.0 | 100.0 | 43.0 | 15.0 | 78.0 | 2.0 | 100.0 | 74.0 | 50.0 | 98.0 | 77.8 | 94.0 | 100.0 | 100.0 | 90.0 |
| 6728 | " " :Purdue 4011-5-3-1-3 | 77.3 | 92.0 | 100.0 | 90.0 | 82.5 | 1.0 | 75.0 | 100.0 | 77.5 | 100.0 | 99.0 | 48.0 | 17.0 | 98.0 | 2.0 | 100.0 | 55.0 | 68.0 | 95.0 | 83.3 | 100.0 | 100.0 | 99.0 | 95.0 |
| 6573 | (Fulwin x Lee-Victoria) x Tennex | 75.4 | 94.0 | 100.0 | 95.0 | 87.5 | 0 | 68.0 | 100.0 | 90.0 | 100.0 | 100.0 | 20.0 | 10.0 | 95.0 | 5.0 | 100.0 | 69.0 | 45.0 | 75.0 | 94.4 | 100.0 | 100.0 | 97.0 | 90.0 |
| 5850 | Arkwin: Tenn.1922 x (Bond-Iogold) | 67.3 | 87.5 | 100.0 | 80.0 | 77.5 | T | 28.0 | 100.0 | 67.5 | 98.7 | 100.0 | 5.0 | 3.0 | 88.0 | 10.0 | 100.0 | 68.0 | 35.0 | 70.0 | 81.2 | 100.0 | 90.0 | 99.0 | 60.0 |
| 2042 | Lee | 62.9 | 90.0 | 100.0 | 85.0 | 77.5 | 0 | 15.0 | 100.0 | 92.5 | 100.0 | 100.0 | 8.0 | 6.0 | 95.0 | 0 | 85.0 | 32.0 | 30.0 | 70.0 | 81.2 | 100.0 | 90.0 | 20.0 | 70.0 |
| 6903 | Lee x (Victoria-Forkeddeer):Purdue 392A2-13-1-2-1 | 78.7 | 92.5 | 100.0 | 95.0 | 92.5 | 3.0 | 85.0 | 100.0 | 90.0 | 90.5 | 97.0 | 28.0 | 21.0 | 98.0 | 0 | 100.0 | 71.0 | 68.0 | 95.0 | 94.4 | 100.0 | 100.0 | 100.0 | 90.0 |
| 6904 | " " :Purdue 392A2-28-5 | 71.0 | 76.0 | 95.0 | 95.0 | 62.5 | T | 65.0 | 100.0 | 87.5 | 71.0 | 84.0 | 28.0 | 38.0 | 65.0 | 0 | 100.0 | 54.0 | 45.0 | 95.0 | 83.3 | 100.0 | 98.0 | 100.0 | 90.0 |
| 6902 | Stanton Strain: Okla. 512336 | 79.0 | 95.0 | 100.0 | 100.0 | 87.5 | 3.0 | 85.0 | 100.0 | 95.0 | 100.0 | 99.0 | 33.0 | 30.0 | 98.0 | 0 | 100.0 | 89.0 | 65.0 | 75.0 | 81.2 | 100.0 | 93.0 | 99.0 | 90.0 |
| 6719 | (Victoria x Hajira-Banner)x(Fulghum-Victoria) | 44.0 | 75.0 | 90.0 | 80.0 | 45.0 | 0 | 3.0 | 100.0 | 7.5 | 80.6 | 98.0 | 5.0 | 1.0 | 55.0 | 0 | 68.0 | 29.0 | 1.0 | 60.0 | 68.7 | 59.0 | 75.0 | 5.0 | 7.0 |
| 6736 | Atlantic x (Clinton2-Santa Fe) | 56.4 | 88.0 | 100.0 | 80.0 | 67.5 | 0 | 8.0 | 100.0 | 95.0 | 67.9 | 97.0 | 16.0 | 1.0 | 83.0 | 0 | 53.0 | 34.0 | 5.0 | 60.0 | 68.7 | 72.0 | 85.0 | 96.0 | 20.0 |
| 6905 | Ballard Selection 45-34 | 81.0 | 92.0 | 100.0 | 100.0 | 90.0 | T | 85.0 | 100.0 | 100.0 | 86.4 | 98.0 | 43.0 | 30.0 | 95.0 | 0 | 100.0 | 100.0 | 75.0 | 95.0 | 88.8 | 100.0 | 100.0 | 99.0 | 85.0 |
| 947 | Tech | 71.3 | 91.0 | 95.0 | 90.0 | 72.5 | 0 | 75.0 | 100.0 | 97.5 | 89.8 | 100.0 | 18.0 | 12.0 | 93.0 | 0 | 98.0 | 65.0 | 63.0 | 80.0 | 75.0 | 94.0 | 93.0 | 95.0 | 13.0 |
| 1815 | Appler | 42.1 | 75.0 | 95.0 | 80.0 | 75.0 | 0 | 5.0 | 70.0 | 67.5 | 82.8 | 97.0 | 3.0 | 1.0 | 10.0 | 0 | 38.0 | 8.0 | 4.0 | 40.0 | 56.2 | 77.0 | 80.0 | 0 | 3.0 |
| 708 | Fulghum | 43.9 | 77.0 | 100.0 | 90.0 | 77.5 | 0 | 5.0 | 75.0 | 65.0 | 85.2 | 100.0 | 3.0 | 0 | 75.0 | 0 | 72.0 | 8.0 | 2.0 | 40.0 | 62.5 | 32.0 | 80.0 | 7.0 | 3.0 |
| 6906 | Victorgrain 48-93 B.R.S. 154 Coker | 55.3 | 85.0 | 100.0 | 85.0 | 77.5 | 0 | 10.0 | 88.0 | 97.5 | 88.5 | 99.0 | 6.0 | 0 | 68.0 | 0 | 90.0 | 32.0 | 1.0 | 50.0 | 62.5 | 56.0 | 85.0 | 46.0 | 15.0 |
| 6907 | Santa Fe x (Stanton-Fulghum):Coker 53-13 | 56.2 | 89.0 | 100.0 | 85.0 | 77.5 | 0 | 8.0 | 100.0 | 85.0 | 76.0 | 98.0 | 3.0 | 0 | 75.0 | 0 | 80.0 | 18.0 | 1.0 | 80.0 | 81.2 | 94.0 | 85.0 | 12.0 | 15.0 |
| 6908 | (Arlington x Delair)x Trispermia:Coker 53-29 | 43.6 | 90.0 | 90.0 | 70.0 | 55.0 | 0 | T | 93.0 | 17.5 | 69.2 | 100.0 | 3.0 | 0 | 65.0 | 0 | 45.0 | 5.0 | 1.0 | 70.0 | 72.2 | 70.0 | 80.0 | 2.0 | 6.0 |

17/ There was 100% survival at Stuttgart, Ark.; Experiment, Ga.; Hopkinsville, Ky.; Holly Springs, State College, and Stoneville, Miss.; Moro, Oreg.; Blackville, Chester, Clemson, and Hartsville, S.C.; Columbia and Jackson, Tenn.; Blacksburg, Va.; and Wardsville, N.C., and Staunton, Va.

1860
The first of the year
was a very dry one
and the crops were
very poor. The
winter was also very
dry and the crops
were very poor.
The spring was very
dry and the crops
were very poor.
The summer was very
dry and the crops
were very poor.
The autumn was very
dry and the crops
were very poor.
The winter was very
dry and the crops
were very poor.
The spring was very
dry and the crops
were very poor.
The summer was very
dry and the crops
were very poor.
The autumn was very
dry and the crops
were very poor.
The winter was very
dry and the crops
were very poor.

1861
The first of the year
was a very dry one
and the crops were
very poor. The
winter was also very
dry and the crops
were very poor.
The spring was very
dry and the crops
were very poor.
The summer was very
dry and the crops
were very poor.
The autumn was very
dry and the crops
were very poor.
The winter was very
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